Math 9 Name: _____
Ch. 6 – Linear Equations and Inequalities Block: ____

6.1 – Solving One-Step Equations

When we are asked to **solve** an equation, we need to find for what values of the variable the equation is "true". We can check to see if a given value is a **solution** by substituting it into the equation and seeing if it is in fact "true".

Ex. 1: Determine whether or not the given value is a solution of the equation.

(a) Is $x = 4$ a solution to $2x - 3 = 5$?

$2x-3=5$
$2(4)-3=5$
$8-3=5$
$5=5$
LS RS
YES

(b) Is $y = -16$ a solution to $\frac{y}{4} + 3 = 2y + 30$?

$\frac{y}{4}+3=2y+30$
$\frac{-16}{4}+3=2(-16)+30$
$-4+3=-32+30$
$-1=-2$ X
NO

We can solve an equation by "undoing" whatever is being done to the variable. Inverse operations allow us to do this:

- The inverse of addition is opposite / Subtraction and vice versa.
- The inverse of multiplication is division and vice versa.

Remember that whatever you do to the left-hand side of the equation, you must also do to the right-hand side and vice versa.

Ex. 2: Solve the following equations. Verify your solutions.

(a) $x - 5 = 21$

$+5 \quad +5$

$x = 26$

$26 - 5 = 21$ ✓

(b) $2.4 + p = 8.9$

$-2.4 \quad -2.4$

$p = 6.5$

$2.4 + 6.5 = 8.9$ ✓

(c) $3n = -3.6$

$\frac{3n}{3} = \frac{-3.6}{3}$

$n = -1.2$

$3(-1.2) = -3.6$ ✓

(d) $\frac{m}{4} = 1.6$ $\quad \times 4$

$m = 6.4$

$\frac{6.4}{4} = 1.6$ ✓

(e) $-2.6q = -0.78$ $\quad \times(-2.6)$

$\frac{-2.6q}{-2.6} = \frac{-0.78}{-2.6}$

$q = 0.3$

$-2.6(0.3) = -0.78$ ✓